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CANNING FRUITS AND VEGETABLES

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CANNING FRUITS AND VEGETABLES

Homemade tomato juice . . . from tomatoes you grew yourself.

Applesauce . . . straight from the tree you climbed as a kid.

Greenbeans . . . remember the hot, sunny afternoon you picked them.

Yes, home canning's popularity in recent years may well stem from the satisfactions that come when you can say, "I did it myself."

For some people, home canning is another way to stretch the family budget. If you have a home garden or a source of fresh produce at a reasonable cost, you may be able to make food dollars go farther.

And some people enjoy home canning because they recognize the process as one of the basic "home arts" practiced through necessity by generations before them.

Whatever the reasons, there's a growing interest in home canning fruits and vegetables. Basically, the practice is easy. Yet every year there are cases of food poisoning—some fatal—because of improper canning techniques.

If you're canning for the first time, or just want to brush up on your techniques, consider the importance of food safety before you begin.

Food safety and home canning

To be safe, canned foods must be heated to a high enough temperature for a long enough time to kill enzymes, yeasts, molds, and bacteria that cause food spoilage. Furthermore, the canned food must be tightly sealed so that organisms in the air cannot get in and cause spoilage.

The time and temperature needed to destroy organisms in different foods varies. The temperature of boiling water, 212° F., is effective in killing organisms in acid foods. In low-acid foods a much higher temperature, 240° F., is needed to make the food safe to eat and to maintain good quality. To obtain a temperature of 240° F., you must use a pressure canner. . . . There is no substitute for this piece of equipment.

The exact times given in this circular for processing fruits and vegetables are based on work by the Consumer and Food Economics Research Institute, Agricultural Research Service, U.S. Department of Agriculture. The recommended processing times are only for fruits and vegetables prepared and packed according to directions given in this publication.

Failure to use the proper temperature for the length of time required for the food being canned can result in disaster!

Acid and low-acid foods

Acid foods include all fruits, tomatoes, and pickled vegetables. These foods can be safely processed in the boiling water bath.

Low-acid foods include all vegetables except tomatoes and pickled vegetables. Meats, fish, and poultry are also low-acid. It is not safe to

use a boiling water bath for these foods. All low-acid foods must be processed in a pressure canner at 240° F. or higher. The dangerous botulism-producing bacteria which may be present in low-acid foods will not be destroyed unless the food is heated to 240° F. for the proper period of time.

Botulism

Clostridium botulinum is a bacterium that does not need air to grow. It is found in soil and in water — almost everywhere in the environment. This organism forms a spore which is very resistant to heat. In the absence of air, as in a sealed jar, and in the presence of low-acid food, the spores will germinate and produce gas and a toxin. It is this toxin that causes botulism, a very serious food poisoning.

Though the spores are very resistant to heat, the toxin they form is easily destroyed by heat. Therefore, in home canning of low-acid foods there are three rules to follow:

1. Always process low-acid foods in a pressure canner at 10 pounds or more pressure for the recommended time.
2. Boil low-acid home canned foods for at least 10 to 20 minutes *before* tasting. Corn and spinach should be boiled for 20 minutes.
3. Destroy all bulging, swollen, or leaking cans of food as well as food from glass jars with bulging lids. *Do not taste.*

Types of canners

Pressure canner. This equipment is used for processing all common vegetables except tomatoes and pickles. For safe use of the pressure canner, check the safety valve. Clean the pet-cock opening by drawing a string or narrow strip of cloth through it. A dial pressure gauge should be checked each year before the canning season. See your county extension adviser, dealer, or manufacturer about checking it. A weighted gauge needs only to be thoroughly cleaned.

Wash the canner kettle well before using it. Wipe the cover with a damp, clean cloth — don't put it in water.

When using the canner, follow the manufacturer's directions.

Pressure saucepan. A pressure saucepan having an accurate indicator or gauge for controlling pressure at 10 pounds (240° F.) may be used for processing vegetables in pint jars. You will need to add 20 minutes to the processing times given for the pressure canner (pages 9 through 13).

Boiling-water-bath canner. Acid foods can be processed safely in a boiling-water-bath canner. Use this type of canner for fruits, tomatoes, and pickled vegetables. Any large vessel will do for a boiling-water-bath canner if it meets these requirements: It should be deep enough to have at least 1 inch of water over the top of the jars and an inch or two of

extra space for boiling. It should have a snug-fitting cover. And there should be a rack to keep the jars from touching the bottom. Do not overload the canner. Jars should not touch one another or touch the sides of the canner.

If your pressure canner is deep enough, you can use it as a water bath. Set the cover in place without fastening it. Be sure to have the pet cock wide open so that steam escapes and no pressure is built up.

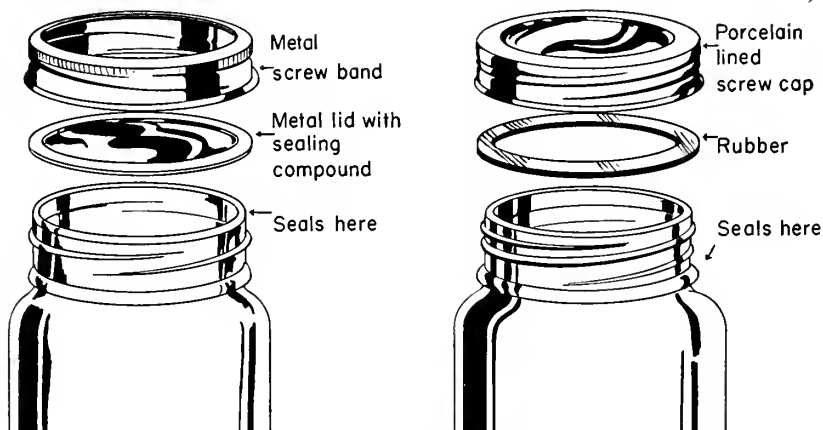
Glass jars and closures

Use only jars manufactured especially for home canning. Processing times are given for half-pint, pint, or quart jars, so do not use jars larger than those recommended for whatever is being canned.

Use only jars and lids that are perfect. You cannot have an airtight seal with a defective jar or lid. Jars do not need to be sterilized when food is to be processed in the boiling water bath or in the pressure canner. However, they do need to be clean and hot. If you have a dishwasher, use it for this job.

Two types of closures for glass jars are shown in the diagram below. Be sure to follow the sealing directions for each type of closure.

Porcelain-lined zinc cap. If the porcelain lining is cracked, broken, or loose, or if there is even a slight dent at the seal edge, discard the cover. Opening these jars by thrusting a knife blade into the rubber and prying ruins many good covers. Each time you use a jar, have a new rubber ring of the right size. Wash the rings in hot sudsy water and then rinse them well. Fit the wet rubber ring on the shoulder of the jar. Fill the jar leaving the necessary headspace. Carefully wipe off any food you may have spilled on the ring or rim. Screw the cap on firmly, then turn it back $\frac{1}{4}$ inch. As soon as the food has been processed, complete the seal by screwing the cap tight.



Two types of closures for glass jars are the two-piece cap on the left and the porcelain-lined zinc cap on the right.

Two-piece cap. The metal lid with sealing compound can be used only once. Pretreat the lids according to the manufacturer's directions. Fill the jar then wipe the rim clean. Put the lid on the jar with the sealing compound next to the glass. Screw the metal band down tight. The lid has enough give to let air escape while the food is being processed. Do not screw it farther after taking the jar from canner. The band may be removed after the contents of the jar are cold, usually after 24 hours.

Important first steps in canning

1. Assemble all the canning equipment you will need before the canning season begins. Be sure all equipment is clean and in good operating condition.
2. Select fruits and vegetables suitable for canning. Remember canning will not improve the quality of a food. For best quality results, choose sound, firm, and ripe fruits and young, tender vegetables. Sort them for size and maturity, so they will cook evenly. Can them quickly while they are fresh — if possible within 2 to 3 hours after they are gathered. If you must store them for a short time, put them in a cool, well-ventilated place.
3. Wash all fruits and vegetables thoroughly. When you remove dirt, you get rid of some of the bacteria that are hardest to kill. Wash in small batches and use several changes of water. Prepare the food according to directions given on pages 9 through 15 for the fruit or vegetable you are canning.

Canning without salt or sugar

You can pack safely without adding salt to vegetables or sugar to fruits. The small amounts of sugar or salt used in canning do not help to prevent spoilage. Fruits may be packed in their own juice, extracted juice, or water. When canning unsweetened fruits or unsalted vegetables, use the same processing times recommended for those with sugar or salt added.

Sirups for canning fruits

For packing fruits, add the following amounts of sugar to each quart of water or fruit juice:

<i>Kind of sirup</i>	<i>Sugar (cups)</i>	<i>Yield (cups)</i>
Thin	2	5
Medium	3	5½
Heavy	4¾	6½

Boil the sugar and the water or fruit juice for 2 minutes or until the sugar is dissolved. Remove any scum. If you are using fruit juice, you can make it by crushing juicy, well-ripened fruit and bringing it to a boil over low heat. Strain through jelly bag or other cloth. Sugar can be added directly to juicy fruits that are packed hot. To do this add ½ cup sugar to each quart of raw, prepared fruit. Heat to simmering (185° to 210° F.).

Pack into jars and process. This method saves time because the juice is extracted and the sirup made in one operation.

Canning with corn sirup or honey

Corn sirup or mild-flavored honey can be used to replace as much as half of the sugar in canning fruit. Brown sugar, molasses, sorghum, and other strong-flavored sirups are not recommended because they impair the fruit flavor and may darken the fruit.

Methods of packing

Hot pack. Food is heated before it is put into containers. Fruits may be heated and packed in sirup, water, or extracted juice. Or juicy fruits may be packed in their own juice — that is, in the juice that cooks out when they are heated without added liquid. Tomatoes are also packed in their own juice. Low-acid vegetables are either packed in water used for preheating or in fresh boiling water.

Have foods near boiling when filling glass jars. Pack fairly loosely, filling containers as directed for the food you are canning (pages 9 to 15).

Raw pack. Cold, raw fruits may be put into containers and then covered with hot sirup, water, or juice. Some vegetables may also be packed this way. To raw-pack tomatoes, press them down in the containers so they are covered with their own juice (if you wish, supplement this liquid with hot tomato juice). Most raw foods are packed tighter than hot foods since they shrink during processing. Corn, lima beans, and peas are packed loosely because they expand during processing.

Head space. After food is packed into the jar, enough sirup, water, or juice is added to cover the food. Usually some space is left between the packed food and the top of the container. Allow the amount of space stated in the directions for canning each food.

If the jar is too full, liquid will bubble out during processing. Solids and seeds may be forced under the sealing compound preventing an air-tight seal. If there is too much head space, the jar may not seal because the processing time is not long enough to exhaust all the air in the jar.

Before placing the lid on the jar, use a narrow spatula or knife to remove air bubbles from jar contents. Add more liquid if needed to cover the food. Wipe the threads and sealing edge of the jar to remove any bits of food. Now you are ready to cap the container.

Processing in the pressure canner

Processing times for different vegetables, as well as general preparation methods, are given on pages 9 through 13. In using the pressure canner, be sure to follow the manufacturer's directions. Some general pointers are given below:

1. Put 2 to 3 inches of boiling water in the bottom of the canner. The amount depends upon the size and shape of the canner and upon the length of the processing time.

2. Set filled jars on the rack in the canner so that steam can circulate around each one. If you put in two layers of jars, place a rack between the layers and stagger the second layer.
3. Fasten the cover securely so that no steam escapes except at the open pet cock or weighted gauge opening.
4. Turn on the heat. When steam pours steadily from the vent, let it escape for at least 10 more minutes to drive all air from the canner. The reason all air must be exhausted is to make certain the internal temperature of the canner reaches 240° F. Then close the pet cock or put on the weighted gauge.
5. Let the pressure rise rapidly to 2 pounds less than that required. Reduce the heat and bring up the last 2 pounds slowly to avoid over-pressure.
6. Start counting time as soon as 10 pounds pressure is reached. Keep pressure as constant as possible by regulating the heat under the canner. Fluctuating pressure can cause a loss of liquid from jars. Do not lower pressure by opening the pet cock.
7. Remove the canner from the heat when the processing time is up.
8. Let the canner stand until the pressure returns to zero. Wait a minute or two, then slowly open the pet cock or remove the weighted gauge.
9. Unfasten the cover and tilt the far side up so that steam escapes away from you.
10. Remove the jars from the canner and complete the seals if closures are not of the self-sealing type. Set the jars upright on a rack or folded cloth, placing them far enough apart so that air can circulate around all of them. Don't slow down cooling by covering the jars.

Note: Fruits and tomatoes may be processed in the pressure canner at 5 pounds pressure. Use the time tables provided by the manufacturer of your canner. Fruits processed in the pressure canner have a softer texture than those processed in the boiling water bath.

Processing in boiling water bath

Only high-acid foods like fruit, tomatoes, and pickled vegetables may be safely processed in a boiling water bath.

1. Fill the water-bath canner with enough water to bring the water level to at least 1 inch over the tops of the jars and heat.
2. Prepare only enough jars of food at one time to fill the canner.
3. Place filled jars on a rack in the canner. Jars must be placed to allow circulation of water around each one. If you've used a raw pack, the water in the canner should be hot but not boiling. For hot pack, have the water boiling. If necessary, after you have put the jars or cans in the canner, add enough boiling water to bring the water an inch or two over the tops of the containers.
4. Put the cover on the canner.

5. Start counting time as soon as the water returns to a rolling boil, and process as long as needed. If the water boils down during processing, add enough boiling water to keep jars covered. Processing times for fruits and tomatoes are given on pages 13 through 15.
6. Remove the jars from the canner as soon as the processing time is up. Unless the jars have self-sealing closures, complete the seals as soon as you take the jars out of the canner.
7. Set the jars on a rack or folded cloth top side up and far enough apart so that air can circulate around them. Don't set hot jars on a cold surface or in a draft as sudden cooling may break the jar. Do not cover jars while they are cooling.

Checking seals

Check all containers after they are thoroughly cooled for proper seals. Test the seal on jars with screw bands and metal lids by removing the band gently and then pressing on the center of the lid. If the lid stays down and does not move, the jar is sealed. Examine jars with porcelain-lined caps for leaks by turning them over in your hand.

Food in leaky containers may be used at once or it may be recanned. If you decide to recan, empty the container and pack and reprocess the food in a perfect container for the full recommended time.

Make sure that containers are clean and that they are labeled to show content and date of canning before storing them in a cool, dry place.

Storing canned fruits and vegetables

Store canned foods in a cool, dry place. For best nutritive value and eating quality, use within one year. Canned foods stored in a warm place or in direct sunlight may lose eating quality in a few weeks or months depending upon the temperature. Dampness may corrode lids and cause leakage which, in turn, will cause the food to spoil.

Freezing does not cause the food to spoil unless the seal or jar is damaged. However, canned foods that have frozen are not as tasty as those that have been stored properly.

DIRECTIONS FOR CANNING VEGETABLES

Preparation Methods and Processing Times for Pressure Canner

Product and general preparation methods	Processing time at 10 pounds pressure (minutes)
<p>ASPARAGUS Break off tough ends; remove scales. Wash thoroughly. Cut into 1-inch pieces.</p> <p>Hot pack: Cover with boiling water; boil 2 or 3 minutes. Pack asparagus to $\frac{1}{2}$ inch of top of jars. Add $\frac{1}{2}$ teaspoon salt to pints; 1 teaspoon salt to quarts. Cover with fresh boiling water to $\frac{1}{2}$ inch of top of jars. Adjust jar lids.</p> <p>Raw pack: Pack as tightly as possible without crushing to $\frac{1}{2}$ inch of top of jars. Add $\frac{1}{2}$ teaspoon salt to pint jars; 1 teaspoon salt to quart jars. Cover with boiling water to $\frac{1}{2}$ inch of top of jars. Adjust jar lids.</p>	<p>Pint jars — 25 Quart jars — 30</p> <p>Pint jars — 25 Quart jars — 30</p>
<p>BEANS, DRY, WITH TOMATOES OR MOLASSES Wash dry beans. Cover with boiling water and boil for 2 minutes. Remove from heat; allow to soak 1 hour. Heat again to boiling. Drain and save liquid for making sauce.</p> <p><i>Tomato sauce:</i> Mix 1 cup tomato catsup with 3 cups liquid from beans (use water if there is not enough liquid). Heat to boiling.</p> <p><i>Molasses sauce:</i> Combine 1 quart water or liquid from beans, 3 tablespoons dark molasses, 1 tablespoon vinegar, 2 teaspoons salt, and $\frac{3}{4}$ teaspoon dry mustard. Heat to boiling.</p> <p>Hot pack: Fill jars three-quarters full with hot beans. Add a small piece of salt pork, ham, or bacon. Fill jars to 1 inch of top with hot sauce. Adjust jar lids.</p>	<p>Pint jars — 65 Quart jars — 75</p>
<p>BEANS, FRESH LIMA Use only young, tender beans. Shell and wash.</p> <p>Hot pack: Cover with boiling water and bring to boil. Pack hot beans loosely to 1 inch of top of jars. Add $\frac{1}{2}$ teaspoon salt to pints; 1 teaspoon salt to quarts. Cover with boiling water to 1 inch of top of jars. Adjust jar lids.</p> <p>Raw pack: Pack the raw washed beans into clean jars. Pack small-type beans to 1 inch of top of pint jars and to $1\frac{1}{2}$ inches of top of quart jars; pack larger beans to $\frac{3}{4}$ inch of top of pint jars and $1\frac{1}{4}$ inch of top of quarts. Do not press or shake down. Add $\frac{1}{2}$ teaspoon salt to pints; 1 teaspoon to quarts. Cover with boiling water to within $\frac{1}{2}$ inch of top of jar. Adjust jar lids.</p>	<p>Pint jars — 40 Quart jars — 50</p> <p>Pint jars — 40 Quart jars — 50</p>
<p>BEANS, SNAP Use only fresh, tender beans. Remove ends; break or cut into 1-inch pieces. Wash thoroughly.</p>	

Processing in Pressure Canner (Continued)

Product and general preparation methods	Processing time at 10 pounds pressure (minutes)
<p>Hot pack: Cover beans with boiling water; boil 5 minutes. Pack hot beans to $\frac{1}{2}$ inch of top of jars. Add $\frac{1}{2}$ teaspoon salt to pints; 1 teaspoon to quarts. Cover with fresh boiling water to $\frac{1}{2}$ inch of top of jars. Adjust jar lids.</p> <p>Raw pack: Pack the prepared raw beans tightly to $\frac{1}{2}$ inch of top of jars. Add $\frac{1}{2}$ teaspoon salt to pints; 1 teaspoon to quarts. Cover with boiling water to $\frac{1}{2}$ inch of top of jars. Adjust jar lids.</p>	<p>Pint jars — 20 Quart jars — 25</p> <p>Pint jars — 20 Quart jars — 25</p>
<p>BEETS</p> <p>Sort for size. Leave on root and an inch of stem. Wash thoroughly. Cook in boiling water until skins slip easily — 15 to 25 minutes depending on size. Remove skins and trim. Leave small beets whole. Cut medium or large beets in $\frac{1}{2}$-inch slices; halve or quarter any large slices. Pack hot beets to $\frac{1}{2}$ inch of top of jars. Add $\frac{1}{2}$ teaspoon salt to pints; 1 teaspoon to quarts. Cover with fresh boiling water to $\frac{1}{2}$ inch of top of jars. (Adding 1 teaspoon vinegar to each pint will help to retain the color.) Adjust jar lids.</p>	<p>Pint jars — 30 Quart jars — 35</p>
<p>CARROTS</p> <p>Wash, scrape, and slice or dice carrots.</p> <p>Hot pack: Cover prepared carrots with boiling water; bring to a boil. Save liquid. Pack hot carrots to $\frac{1}{2}$ inch of top of jars. Add $\frac{1}{2}$ teaspoon salt to pints; 1 teaspoon salt to quarts. Cover with hot cooking liquid to $\frac{1}{2}$ inch of top of jars. Adjust jar lids.</p> <p>Raw pack: Wash, scrape, and slice or dice carrots. Pack the raw carrots tightly to 1 inch of top of jars. Add $\frac{1}{2}$ teaspoon salt to pints; 1 teaspoon to quarts. Fill jars to $\frac{1}{2}$ inch of top with boiling water. Adjust jar lids.</p>	<p>Pint jars — 25 Quart jars — 30</p> <p>Pint jars — 25 Quart jars — 30</p>
<p>CORN, CREAM STYLE</p> <p>Husk and remove silk from corn. Wash. Cut corn from cob at about center of kernel and scrape cobs.</p> <p>Hot pack: To each quart of corn add 1 pint boiling water. Heat to boiling. <i>Use only pint jars.</i> Pack hot to 1 inch of top of jars. Add $\frac{1}{2}$ teaspoon salt to each jar. Adjust jar lids.</p> <p>Raw pack: Pack corn to $1\frac{1}{2}$ inches of top of <i>pint jars</i>. Do not shake or press down. Add $\frac{1}{2}$ teaspoon salt to each jar. Fill jars to $\frac{1}{2}$ inch of top. Adjust jar lids.</p>	<p>Pint jars — 85</p> <p>Pint jars — 95</p>
<p>CORN, WHOLE KERNEL</p> <p>Husk and remove silk from corn. Wash. Cut from cob at about two-thirds the depth of the kernel. <i>Do not scrape cob.</i></p> <p>Hot pack: To each quart of corn add 1 pint boiling water. Heat to boiling. Pack hot corn to 1 inch of top of jars. Cover with hot liquid or a mixture of corn and liquid to 1 inch of top of jars. Add $\frac{1}{2}$ teaspoon salt to pints; 1 teaspoon to quarts. Adjust jar lids.</p>	<p>Pint jars — 55 Quart jars — 85</p>

Processing in Pressure Canner (Continued)

Product and general preparation methods	Processing time at 10 pounds pressure (minutes)
Raw pack: Pack corn to 1 inch of top of jars. Do not shake or press down. Add $\frac{1}{2}$ teaspoon salt to pints; 1 teaspoon to quarts. Fill to $\frac{1}{2}$ inch of top with boiling water. Adjust jar lids.	Pint jars — 55 Quart jars — 85
HOMINY Place 2 quarts dry field corn in an enameled pan. Add 8 quarts water and 2 ounces lye. Boil vigorously $\frac{1}{2}$ hour, then allow to stand 20 minutes. Rinse off lye, using several hot-water rinses. Then rinse with cold water to cool for handling. Work hominy with hands until dark tips of kernels are removed (about 5 minutes). Separate the tips from the corn by floating them off in water or by placing the corn in a coarse sieve and washing thoroughly. Add water to cover the hominy about 1 inch; boil 5 minutes; change water. Repeat 4 times. Then cook until kernels are soft ($\frac{1}{2}$ to $\frac{3}{4}$ hour). Drain. This will make about 6 quarts. Pack hot hominy to $\frac{1}{2}$ inch of top of jar. Add $\frac{1}{2}$ teaspoon salt to pints; 1 teaspoon to quarts. Fill with boiling water to $\frac{1}{2}$ inch of top of jars. Adjust jar lids.	Pint jars — 60 Quart jars — 70
MUSHROOMS Trim stems and discolored parts of mushrooms. Soak in cold water for 10 minutes to remove soil. Wash in clean water. Leave small mushrooms whole; cut larger ones into halves or quarters. Steam 4 minutes or heat gently for 15 minutes without added liquid in a covered saucepan. Pack hot mushrooms to $\frac{1}{2}$ inch of top of jars. Add boiling water, if necessary, to bring liquid to $\frac{1}{2}$ inch of jar top. Add $\frac{1}{4}$ teaspoon salt to half-pints; $\frac{1}{2}$ teaspoon to pints. For better color, add ascorbic acid — $\frac{1}{8}$ teaspoon (250 milligrams) for each pint. Adjust jar lids.	Half-pint jars—30 Pint jars — 30
OKRA Use only tender pods. Wash and trim. Cook for 1 minute in boiling water. Leave whole or cut into 1-inch lengths. Pack hot okra to $\frac{1}{2}$ inch of jar tops. Add $\frac{1}{2}$ teaspoon salt to pints; 1 teaspoon to quarts. Cover with boiling water to $\frac{1}{2}$ inch of jar tops. Adjust jar lids.	Pint jars — 25 Quart jars — 40
PEAS, GREEN Wash shelled peas. Hot pack: Cover with boiling water. Bring to boil. Pack hot peas loosely to 1 inch of top of jars. Add $\frac{1}{2}$ teaspoon salt to pints; 1 teaspoon to quarts. Cover with boiling water to 1 inch of top of jars. Adjust jar lids. Raw pack: Pack peas to 1 inch of top. Do not shake or press down. Add $\frac{1}{2}$ teaspoon salt to pints; 1 teaspoon to quarts. Cover with boiling water to $1\frac{1}{2}$ inches of top of jars. Adjust jar lids.	Pint jars — 40 Quart jars — 40 Pint jars — 40 Quart jars — 40

Processing in Pressure Canner (Continued)

Product and general preparation methods	Processing time at 10 pounds pressure (minutes)
POTATOES, CUBED Wash, pare, and dice potatoes into $\frac{1}{2}$ -inch cubes. To prevent potato cubes from darkening, dip them in a brine (1 teaspoon salt to 1 quart water). Drain. Cook for 2 minutes in boiling water and drain. Pack hot potatoes to $\frac{1}{2}$ inch of top of jars. Add $\frac{1}{2}$ teaspoon salt to pints; 1 teaspoon to quarts. Cover with boiling water to $\frac{1}{2}$ inch of jar top. Adjust jar lids.	Pint jars — 35 Quart jars — 40
POTATOES, WHOLE Use small potatoes 1 to $2\frac{1}{2}$ inches in diameter. Wash, pare, and cook in boiling water for 10 minutes. Drain. Pack hot potatoes to $\frac{1}{2}$ inch of top of jars. Add $\frac{1}{2}$ teaspoon salt to pints; 1 teaspoon to quarts. Cover with boiling water to $\frac{1}{2}$ inch of jar top. Adjust jar lids.	Pint jars — 30 Quart jars — 40
PUMPKIN, CUBED Wash, remove seeds, and peel pumpkin. Cut into 1-inch cubes. Add water to barely cover; bring to boil. Pack hot cubes to $\frac{1}{2}$ inch of top of jars. Add $\frac{1}{2}$ teaspoon salt to pints; 1 teaspoon to quarts. Fill with hot cooking liquid to $\frac{1}{2}$ inch of top of jars. Adjust jar lids.	Pint jars — 55 Quart jars — 90
PUMPKIN, STRAINED Wash, remove seeds, and peel pumpkin. Cut into 1-inch cubes. Steam until tender, about 25 minutes. Put through strainer or food mill. Simmer until heated through, stirring to prevent sticking. Pack hot to $\frac{1}{2}$ inch of top of jars. Add no liquid or salt. Adjust jar lids.	Pint jars — 65 Quart jars — 80
SPINACH (and other greens) Can only tender, freshly picked spinach. Look over and wash carefully. Discard imperfect leaves and tough stems and mid-ribs. Place about $2\frac{1}{2}$ pounds of spinach in a cheesecloth bag and steam about 10 minutes or until thoroughly wilted. Pack hot spinach loosely to $\frac{1}{2}$ inch of top of jars. Add $\frac{1}{4}$ teaspoon salt to pints; $\frac{1}{2}$ teaspoon to quarts. Cover with boiling water to $\frac{1}{2}$ inch of top of jars. Adjust jar lids.	Pint jars — 70 Quart jars — 90
SQUASH, SUMMER Wash but do not peel. Trim ends. Cut squash into $\frac{1}{2}$ -inch slices; halve or quarter to make pieces uniform in size. Hot pack: Add water barely to cover. Bring to boil. Pack hot squash to $\frac{1}{2}$ inch of top of jars. Add $\frac{1}{2}$ teaspoon salt to pints; 1 teaspoon to quarts. Cover with hot cooking liquid to $\frac{1}{2}$ inch of top of jars. Adjust jar lids. Raw pack: Pack raw squash tightly into clean containers to 1 inch of top of jar. Add $\frac{1}{2}$ teaspoon salt to pints; 1 teaspoon to quarts. Cover with boiling water to $\frac{1}{2}$ inch of jar top. Adjust jar lids.	Pint jars — 30 Quart jars — 40 Pint jars — 25 Quart jars — 30

Processing in Pressure Canner (Concluded)

Product and general preparation methods	Processing time at 10 pounds pressure (minutes)
SQUASH, WINTER Prepare, pack, and process same as pumpkin.	
SWEETPOTATOES, DRY PACK Wash sweetpotatoes. Sort for size. Boil or steam until partly soft (20 to 30 minutes). Peel and cut in pieces if large. Pack hot sweetpotatoes tightly to 1 inch of top of jars. Press gently to fill spaces. Add no salt or liquid. Adjust jar lids.	Pint jars — 65 Quart jars — 95
SWEETPOTATOES, WET PACK Wash sweetpotatoes. Sort for size. Boil or steam until skins slip easily. Peel and cut in pieces. Pack hot sweetpotatoes to 1 inch of top of jars. Add $\frac{1}{2}$ teaspoon salt to pints; 1 teaspoon to quarts. Cover with boiling water to 1 inch of top of jars. Adjust jar lids.	Pint jars — 55 Quart jars — 90

DIRECTIONS FOR CANNING FRUITS, TOMATOES, AND PICKLED VEGETABLES

Preparation Methods and Processing Times for Boiling Water Bath

Product and general preparation methods	Processing time (minutes)
APPLES Wash, pare, and cut in pieces. To keep fruit from darkening, drop into water containing 2 tablespoons each of vinegar and salt per gallon. Drain; boil 5 minutes in thin sirup or water. Pack hot fruit to within $\frac{1}{2}$ inch of top of jars. Cover with hot sirup or water. Leave $\frac{1}{2}$ inch headspace at top of jars. Adjust jar lids.	Pint jars — 15 Quart jars — 20
APPLESAUCE Make applesauce, sweetened or unsweetened. Heat thoroughly, stirring to keep it from sticking to pan. Pack hot to $\frac{1}{4}$ inch of top of jars. Adjust jar lids.	Pint jars — 10 Quart jars — 10
APRICOTS Follow method and processing time for peaches. Peeling may be omitted.	
BEETS, PICKLED Select tender beets. Cut off tops, leaving 1 inch stem. Also leave on roots. Wash. Cover with boiling water; cook until tender. Remove skins and trim. Leave small beets whole; slice larger beets. For sirup use 2 cups vinegar (or $1\frac{1}{2}$ cups vinegar and $\frac{1}{2}$ cup water) to 2 cups sugar. Heat to boiling. Pack hot beets in jars to $\frac{1}{2}$ inch of top. Add $\frac{1}{2}$ teaspoon salt to a pint; 1 teaspoon to a quart. If desired, add 3 to 6 whole cloves. Cover with boiling pickling sirup, leaving $\frac{1}{2}$ inch headspace at top of jars. Adjust jar lids.	Pint jars — 30 Quart jars — 30

Processing in Water Bath (Continued)

Product and general preparation methods	Processing time (minutes)
BERRIES (Strawberries lose flavor and color when canned.) Hot pack: (for firm berries) Wash berries and drain well. Add $\frac{1}{2}$ cup sugar to each quart. Cover pan and bring to boil, shaking pan to keep fruit from sticking. Pack hot to $\frac{1}{2}$ inch of top of jars. Adjust jar lids. Raw pack: (for red raspberries and other soft berries) Wash berries and drain well. Fill jars to $\frac{1}{2}$ inch of top. For a full pack, shake down while filling. Cover with boiling sirup to $\frac{1}{2}$ inch of top of jars. Adjust jar lids.	Pint jars — 10 Quart jars — 15 Pint jars — 10 Quart jars — 15
CHERRIES Wash cherries. If desired, remove pits. Hot pack: Use method and processing times for firm berries, above, adding a small amount of water when heating unpitted cherries to keep them from sticking to pan. Raw pack: Fill jar to $\frac{1}{2}$ inch of top. For full pack, shake cherries down when filling containers. Cover with boiling sirup to $\frac{1}{2}$ inch of jar top. Adjust jar lids.	Pint jars — 20 Quart jars — 25
FRUIT JUICES Wash, remove pits if desired, and crush fruit. Heat to simmering (185°-210° F.). Strain through cloth bag. Add sugar if desired, about 1 cup to 1 gallon. Reheat to simmering. Fill jars to top with hot juice. Adjust jar lids.	Pint jars — 5 Quart jars — 5
FRUIT PUREES Use sound, ripe fruit. Wash; remove pits if desired. Cut large fruit in pieces. Simmer until soft, adding a little water if necessary to keep fruit from sticking. Put through food mill or strainer. Add sugar to taste. Heat again to simmering. Fill jars to $\frac{1}{2}$ inch of top with hot puree. Adjust jar lids.	Pint jars — 10 Quart jars — 10
PEACHES Select firm, ripe peaches. Wash. Dip in boiling water, then quickly in cold water. Peel, cut peaches in halves, remove pits. Slice if desired. To prevent darkening, drop fruit into water containing 2 tablespoons each of vinegar and salt per gallon. Drain just before heating or packing raw. Hot pack: Heat peaches in hot sirup. Very juicy peaches may be heated with sugar, without water. Pack hot fruit to $\frac{1}{2}$ inch of top of jars. Cover with boiling sirup to $\frac{1}{2}$ inch of top of jars. Adjust jar lids. Raw pack: Pack raw fruit to $\frac{1}{2}$ inch of top of jars. Fill with boiling sirup to $\frac{1}{2}$ inch of top of jars. Adjust jar lids.	Pint jars — 20 Quart jars — 25 Pint jars — 25 Quart jars — 30
PEARS Wash, peel, cut in halves, and core. Proceed as with peaches using either hot or raw pack.	

Processing in Water Bath (Concluded)

Product and general preparation methods	Processing time (minutes)
PLUMS Wash. To can whole, prick skins to prevent their bursting. Freestone varieties may be halved and pitted. Hot pack: Heat to boiling in sirup or juice. Very juicy plums may be heated with sugar, adding no water. Pack hot fruit to $\frac{1}{2}$ inch of top of jars. Cover with boiling sirup to $\frac{1}{2}$ inch of top of jars. Adjust jar lids. Raw pack: Pack raw fruit to $\frac{1}{2}$ inch of top of jars. Cover with boiling sirup to $\frac{1}{2}$ inch of top of jars. Adjust jar lids.	Pint jars — 20 Quart jars — 25 Pint jars — 20 Quart jars — 25
RHUBARB Select young tender rhubarb. Wash and cut into $\frac{1}{2}$ -inch pieces. Add $\frac{1}{2}$ cup sugar to each quart and let stand to draw out juice. Bring to boiling. Pack hot to $\frac{1}{2}$ inch of top of jars. Adjust jar lids.	Pint jars — 10 Quart jars — 10
SAUERKRAUT Heat well-fermented sauerkraut to simmering (185°-210° F.). Pack hot kraut into containers; cover with hot juice, filling to $\frac{1}{2}$ inch of top of jar. Adjust jar lids.	Pint jars — 15 Quart jars — 20
TOMATOES Use only perfect, ripe red tomatoes. Scald in boiling water for about 30 seconds. Then dip quickly in cold water. Slip off skins and cut out stem ends. Hot pack: Quarter peeled tomatoes. Heat slowly to boiling point, stirring often. Pack hot to $\frac{1}{2}$ inch of top of jars. Add $\frac{1}{2}$ teaspoon salt to pints; 1 teaspoon to quarts. Adjust jar lids. Raw pack: Tomatoes may be left whole or cut in halves or quarters. Pack tomatoes, pressing gently to fill space, to $\frac{1}{2}$ inch of top of jars. Add no water. Add $\frac{1}{2}$ teaspoon salt to pints; 1 teaspoon to quarts. Adjust jar lids. (This method gives better-quality canned tomatoes than the hot pack.)	Pint jars — 10 Quart jars — 10 Pint jars — 35 Quart jars — 45
TOMATO JUICE Use ripe, juicy red tomatoes. Wash, remove stem ends, and cut into pieces. Simmer until softened, stirring often. Put through food mill or strainer. Add 1 teaspoon salt to each quart juice. Reheat at once just to boiling. Pack boiling hot juice to $\frac{1}{2}$ inch of top of jars. Adjust jar lids.	Pint jars — 10 Quart jars — 10

FOR MORE INFORMATION on preserving food at home, write to the Information Office, College of Agriculture, University of Illinois at Urbana-Champaign, Urbana Illinois 61801, to obtain the following circulars: *How to Prepare Fruits and Vegetables for Freezing*, Circular 602 and *Freezing Cooked and Prepared Foods*, Circular 835.

Your county extension adviser in home economics will help you with questions you may have about home food preservation.

GUIDE FOR 1 QUART CANNED FRUIT OR VEGETABLE FROM FRESH FOOD

Exactly how much fresh fruit or vegetable is needed depends on the quality, variety, and maturity and sometimes the size of fresh food you are using. The size of the pieces and whether the food is packed raw or hot also makes a difference in how much is needed. It takes about 4 medium apples, peaches, or tomatoes; about 3 medium pears; and about 12 plums to make a pound. The following amounts of fresh fruits or vegetables are suggested for a quart of canned food.

<i>For one canned quart</i>	<i>Plan on this number of pounds</i>	<i>For one canned quart</i>	<i>Plan on this number of pounds</i>
Apples	2½-3	Okra	1½
Apricots	2-2½	Peaches	2-3
Asparagus	2½-4½	Pears	2-3
Beans, lima, in pods	3-5	Peas, green, in pods	3-6
Beans, snap	1½-2½	Plums	1½-2½
Beets, without tops	2-3½	Pumpkin or winter squash	1½-3
Berries, except strawberries	1-2	Spinach or other greens	2-6
	quart boxes	Squash, summer	2-4
Carrots, without tops	2-3	Sweetpotatoes	2-3
Cherries, canned unpitted	2-2½	Tomatoes	2½-3½
Corn, sweet, in husks	3-6	Tomatoes, for juice	3-3½

WARNING: Proper heating and correct sealing are absolutely *essential* for successful canning. Be sure you use the processing method and processing time given for each food. If not destroyed by heat, bacteria can grow in a sealed jar.

Examine canned foods before using. Do not taste the food if the container is leaky, the lid bulges, or the seal is faulty; or if liquid spurts when you open the container, the food has a peculiar odor, or mold is present. Destroy the food at once.

As a safeguard against botulism, heat home-canned, low-acid vegetables to boiling. Boil at least 10 minutes before tasting or using. Spinach and corn should be boiled for 20 minutes.

*This circular was prepared by Geraldine Acker, Professor of Foods and Nutrition.
It replaces Circular 943.*

The Illinois Cooperative Extension Service provides equal opportunities in programs and employment.

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